

Chronic Conditions

DEFINITION AND SCOPE OF PROBLEM

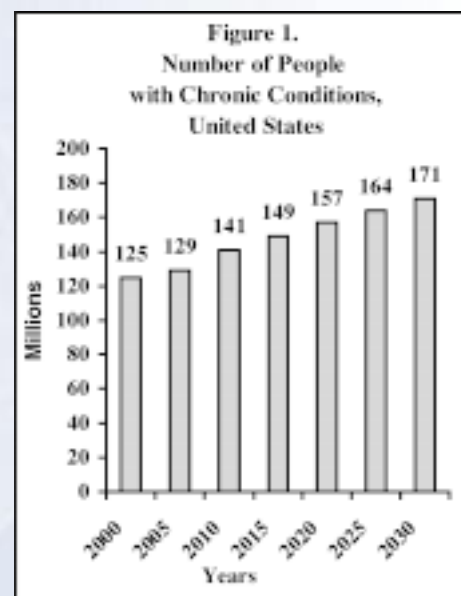
Chronic diseases are broadly defined as illnesses that are prolonged, do not resolve spontaneously, and are rarely cured completely. These illnesses, which are sometimes preventable, pose a significant burden in mortality, morbidity, and cost.¹

Chronic conditions are a major cause of illness, disability, and death in the United States. Approximately 125 million Americans have chronic conditions and millions more will develop them as the population ages.² According to the CDC, chronic illnesses and chronic diseases account for more than 70 percent of all deaths in the United States. Over 40 million people nationwide are limited in their daily activities by chronic conditions.³

By the year 2020, 25 percent of the American population will be living with multiple chronic conditions, and costs for managing these conditions will reach \$1.07 trillion.⁴ The number of people with chronic conditions is projected to increase from 125 million in 2000 to 171 million in the year 2030. (Fig. 1)

Chronic conditions mean different things to different people. Some are life-threatening and some are nuisances. No one is immune to chronic conditions. Men and women, people of all racial and ethnic groups, and all ages and financial means have chronic conditions. Chronic conditions vary, however, according to age and sex, with some being more prevalent than others among specific populations.

According to the National Academy on an Aging Society, men and women share four out of the five most prevalent chronic conditions: orthopedic impairments, sinusitis, hypertension, and hay fever. However, for all age groups, hearing impairments are more common in men and arthritis is more common in women. (Fig. 2)



SOURCE: Johns Hopkins University and Robert Wood Johnson, Partnership for Solutions, *Projection of Chronic Illness Prevalence and Cost Inflation, 2001*

Chronic Conditions and Poor Health: Who is at risk and why?

Generally, people with chronic conditions are more likely than the population as a whole to report they are in fair or poor health.⁵ When women in Kentucky were asked to rate their general health, nearly 23 percent responded that their health was “fair to poor”, compared to 14.9 percent of women responding that way nationwide. In general, gender differences for self-reported health status are not great, but the proportion of people reporting fair or poor health increases with age.

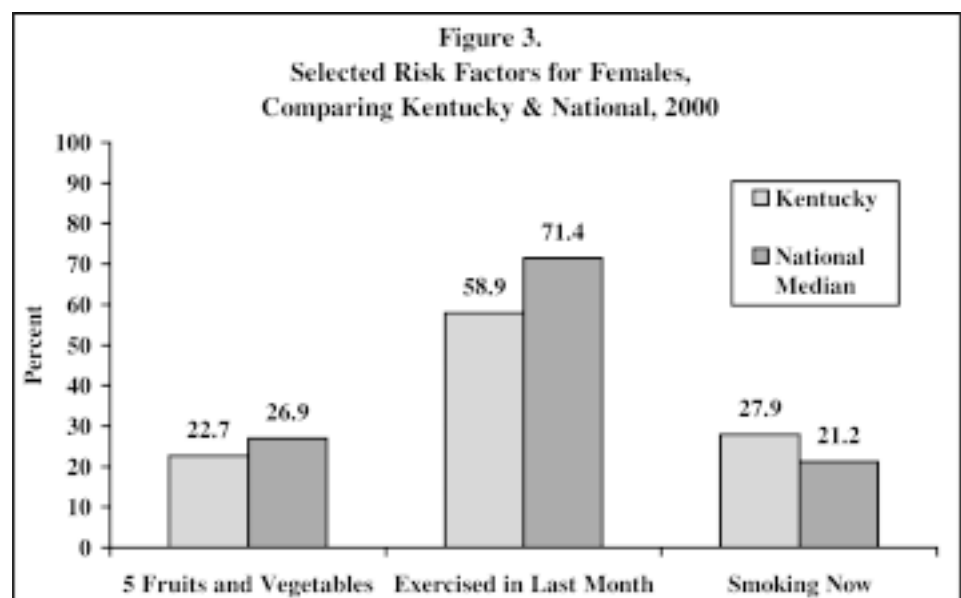
Not surprisingly, Kentucky women exhibit many of the lifestyle risk factors, which often contribute to poor health. Factors such as poor nutrition, sedentary lifestyle, and smoking, are markedly higher among Kentucky women than women nationwide. (Fig. 3)

Most modifiable risk factors are associated with the development of five well-known chronic conditions – hypertension, heart disease, diabetes, cancer, and stroke.

About one quarter of people with either hypertension, heart disease, diabetes, or stroke have three or more risk factors. Lack of exercise and being overweight are the most common risk factors, with 76

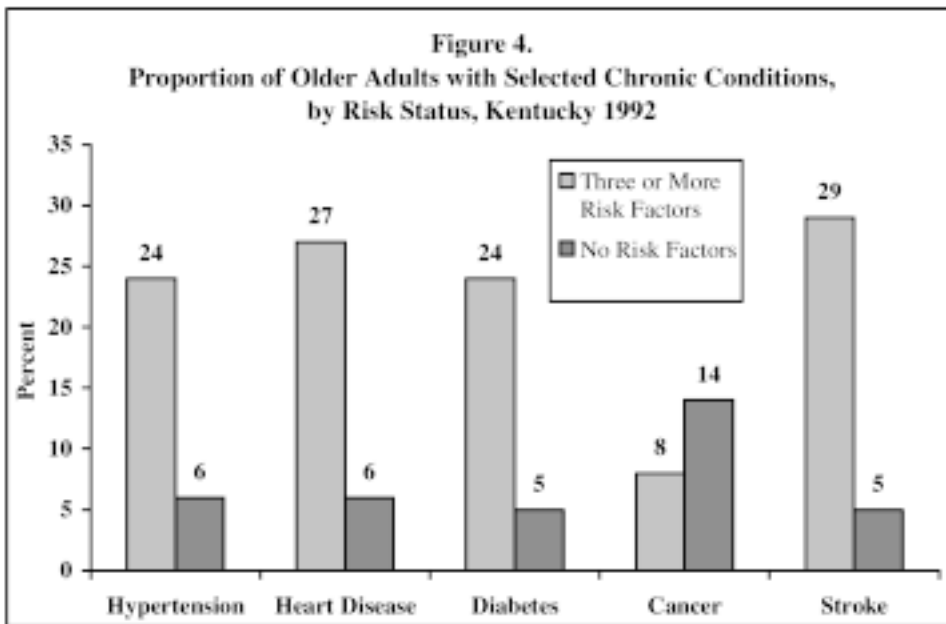
Figure 2. Most Common Chronic Conditions in the US, by Age and Gender		
	Male	Female
ALL AGES	<ul style="list-style-type: none"> • Orthopedic impairments • Sinusitis • Hearing Impairments • Hypertension • Hay Fever 	<ul style="list-style-type: none"> • Sinusitis • Arthritis • Orthopedic impairments • Hypertension • Hay Fever
0 – 17	<ul style="list-style-type: none"> • Asthma • Hay Fever • Sinusitis • Bronchitis • Dermatitis 	<ul style="list-style-type: none"> • Sinusitis • Asthma • Hay Fever • Bronchitis • Dermatitis
18 – 44	<ul style="list-style-type: none"> • Orthopedic impairments • Sinusitis • Hay Fever • Hearing Impairments • Hypertension 	<ul style="list-style-type: none"> • Sinusitis • Orthopedic impairments • Hay Fever • Migraine • Asthma
45 – 74	<ul style="list-style-type: none"> • Hypertension • Arthritis • Hearing Impairments • Orthopedic Impairments • Heart Disease 	<ul style="list-style-type: none"> • Arthritis • Hypertension • Sinusitis • Orthopedic Impairments • Hay Fever
75+	<ul style="list-style-type: none"> • Hearing Impairments • Arthritis • Heart Disease • Hypertension • Cataracts 	<ul style="list-style-type: none"> • Arthritis • Hypertension • Hearing Impairments • Heart Disease • Cataracts
Note: Taken from <i>Chronic Conditions, A Challenge for the 21st Century</i> , Number 1: November 1999.		

SOURCE: National Academy on an Aging Society analysis of 1994 National Health Interview data



SOURCE: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BRFSS), 2000

percent of people with hypertension and 72 percent of people with heart disease being overweight.⁶ (Fig. 4)

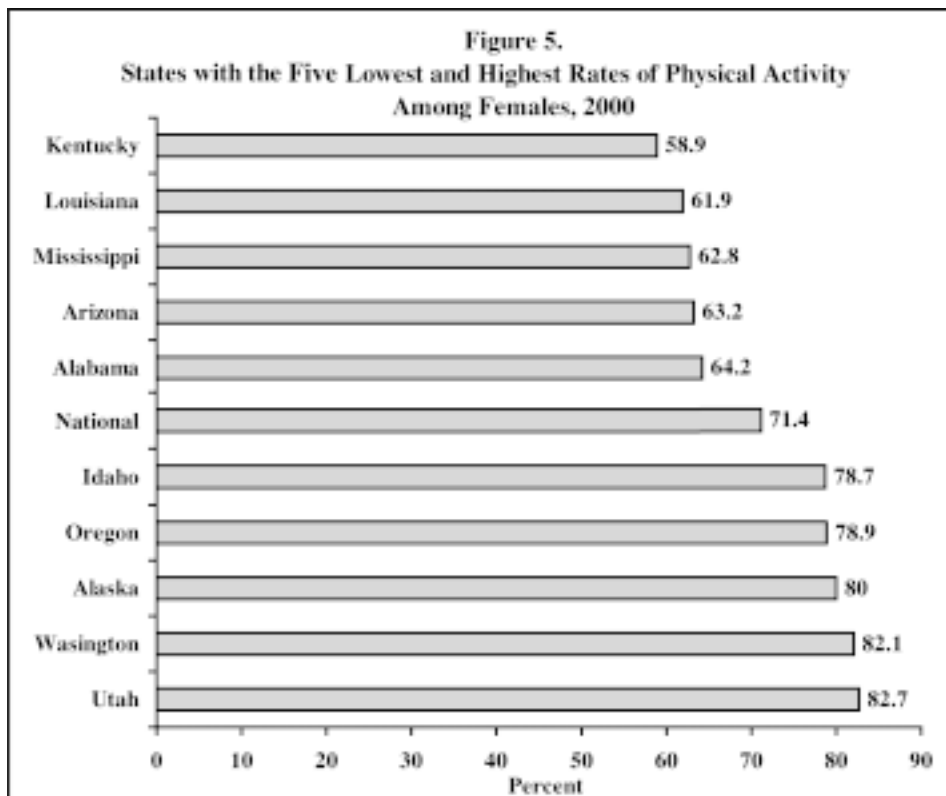


SOURCE: National Academy on an Aging Society analysis of data from the 1992 Health and Retirement Study

Physical Activity and Overweight

Lack of physical activity is a well-known risk factor for many chronic conditions, specifically, hypertension, cardiovascular disease and diabetes. According to the 2000 Behavioral Risk Factor

Surveillance System (BRFSS) data, women in Kentucky have the highest rate of sedentary lifestyle of women in the nation. Only 58.9 percent of women in Kentucky responded “yes” when asked if they have participated in physical activities in the last month, compared to 71.4 percent of women nationally. (Fig. 5)



SOURCE: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BRFSS), 2000

Lack of physical activity is also a major contributor to being overweight, which for women, is defined as a body mass index of 25 or higher (BMI is a measure which takes into account a person’s weight and height to gauge total body fat in adults). In Kentucky in 1999, 49.6 percent of women were determined to be at risk for health problems related to being overweight.⁷ (Fig. 6)

Another byproduct of poor diet and sedentary lifestyle is obesity (for women, defined as having a BMI equal to or greater than 30). BRFSS data indicate obesity rates for women in Kentucky have risen dramatically over the past ten years, from 12.7 percent in 1990, to 22 percent in 2000. (Fig. 7)

Overweight and obese individuals are more likely to die prematurely than individuals who are not overweight. Obesity is second only to smoking as the leading cause of preventable death in the United States.⁸

Smoking

Kentucky leads the nation as the state with the highest rate of current smokers. This habit increases mortality and morbidity for nearly all chronic conditions. Smoking is responsible for at least one out of every five deaths in the nation.⁹

For women, Kentucky had the second highest rate of smoking with 28 percent of females being current smokers in 2000.¹⁰ Nevada led the nation with 29.4 percent of female smokers. The national median for women who smoked was 21.2 percent. In 2000, Kentucky’s overall

Figure 6.
Percentage Adults at Risk for Health Problems Due to Being
Overweight* and Lack of Exercise**, 2000

State	Males		Females	
	*Being Overweight	Lack of Exercise	*Being Overweight	Lack of Exercise
Kentucky	68.2	84.6	49.6	86.7
Nationwide Median	64.9	77.4	45.2	78.7

*BMI > 25

**Regular and sustained physical activity

SOURCE: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BRFSS),

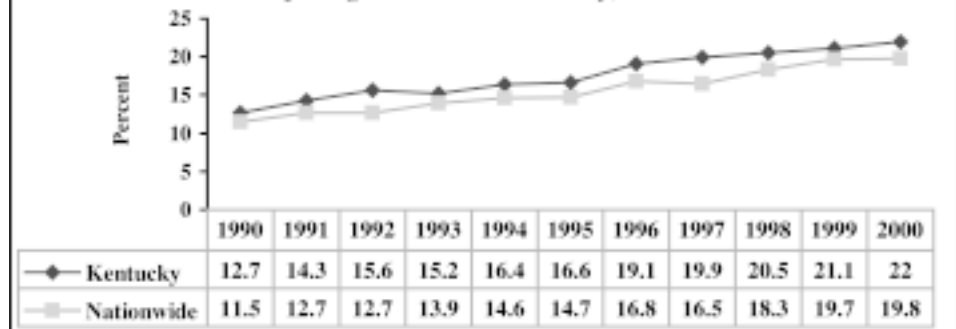
smoking rate (including men and women) was the highest in the nation with 30.5 percent being current smokers. Nevada had the second highest overall smoking rate at 29 percent. The national median for both sexes was 23.2 percent. (Fig. 8)

Smoking not only contributes to serious chronic diseases such as heart disease, cancer and stroke, but is also a primary contributor to other chronic respiratory conditions such as asthma and chronic obstructive pulmonary disease (COPD). Please refer to Chapter 5: *Tobacco Use and Smoking Related Illnesses*, for more information.

Outpatient Utilization for Chronic Conditions

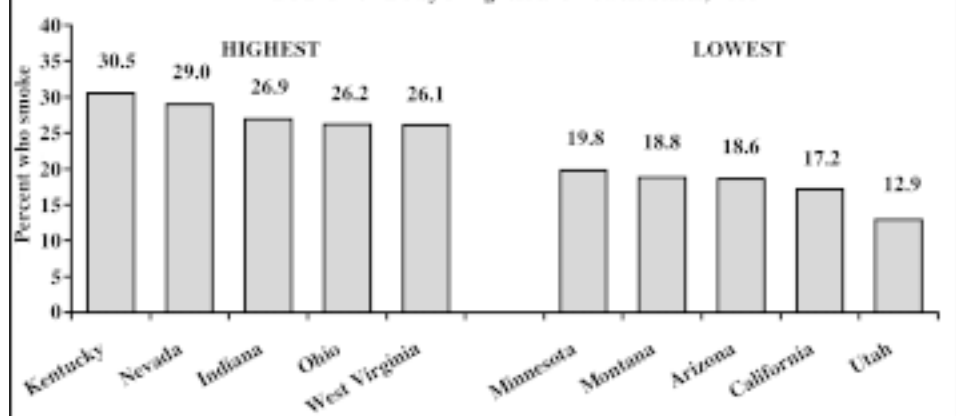
In the U.S., women utilize health services more than men, even when excluding services related to pregnancy and childbirth. In 1998, approximately 500 million women in the United States utilized ambulatory care services, representing an age-adjusted rate of 4.6 visits per woman per year.¹¹ For non-pregnancy related visits, women still utilized ambulatory care services at a rate 33 percent higher than males.¹² For non-pregnancy related diagnoses, the age-adjusted rate

Figure 7.
Female Obesity Rates
Comparing National & Kentucky, 1990-2000



SOURCE: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System (BRFSS), 1990 - 2000

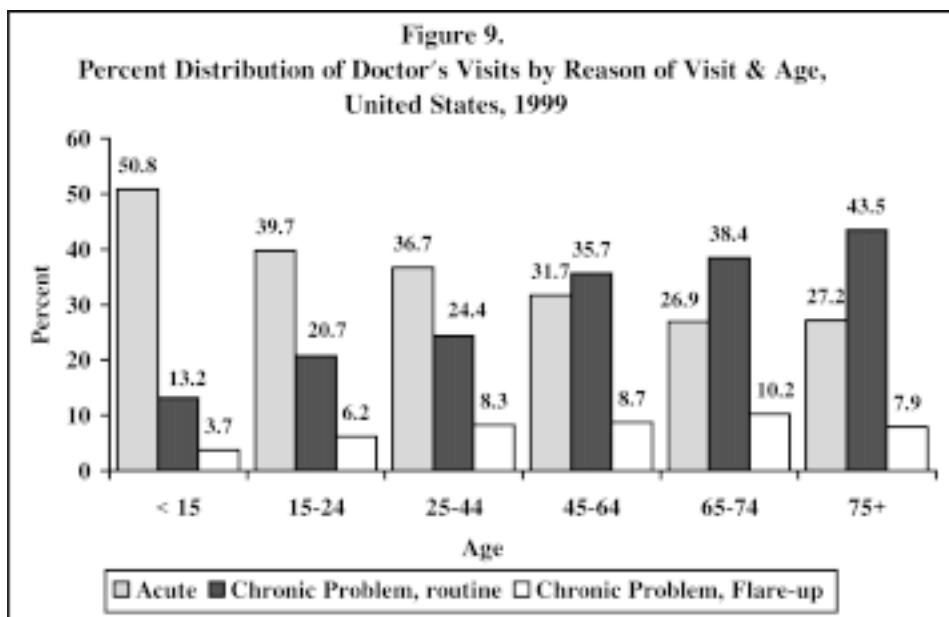
Figure 8.
Percent Current Cigarette Smokers,
Male and Female by 5 Highest and Lowest States, 2000



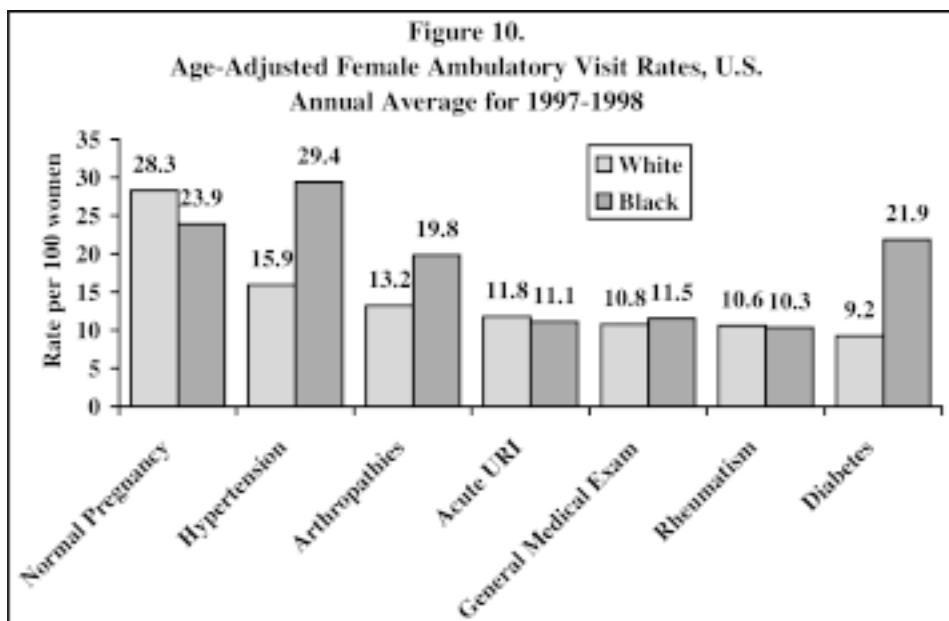
SOURCE: Centers for Disease Control and Prevention, Behavioral Factor Risk Surveillance System (BRFSS), 2000

of visits to primary care physicians was 58 percent higher among women than men and the rate of visits to outpatient departments was 40 percent higher for women than men.¹³

Chronic conditions are often the cause for female outpatient



SOURCE: National Hospital Ambulatory Medical Care Survey: 1999 Outpatient Department Summary. Advance Data from Vital and Health Statistics: Number 321, June 26, 2001. National Center for Health Statistics



SOURCE: Utilization of Ambulatory Medical Care by Women: United States, 1997-98. Series 13, Number 149. National Center for Health Statistics

visits. According to the National Center for Health Statistics (NCHS), the percent of female visits classified as a "routine" visit for a chronic problem was 28.6 percent, and another 8.2 percent were classified as "flare-up" of a chronic problem. The majority of visits for women overall were for acute problems, representing 34.5 percent of all doctor visits.¹⁴ However, as age increases, the rate for visits related to chronic problems increases. (Fig. 9)

Differences among physician office visits for chronic and acute conditions not only vary by age, but also by race. According to the NCHS, outpatient visits for hypertension, diabetes, and arthropathies (includes all arthritic conditions) are markedly higher for black women than white women. Visits related to hypertension show the biggest disparity with 29.4 percent for black women and 15.9 for white women. Diabetes visit rates were 21.9 percent for black women and 9.2 percent for white women. Visits for arthropathies showed less disparity with a rate of 19.8 percent for black women and 13.2 percent for white women. (Fig. 10)

LEADING CHRONIC DISEASE KILLERS

While much of the chronic disease burden is preventable, certain chronic diseases remain the nation's leading killers: cardiovascular disease, cancer, diabetes, and COPD. In fact, these four chronic diseases account for over 70 percent of all deaths to both men and women in Kentucky. (Fig. 11)

Cardiovascular Disease

Cardiovascular disease (CVD) is the term used to identify coronary heart disease, the disease that leads to a heart attack, and diseases of the blood vessels including hypertension and stroke. Illness and death from CVD are related to a number of modifiable risk factors including sedentary lifestyle, poor nutrition, obesity, smoking, hypertension and high cholesterol. Some risk factors, however, are not

Figure 11.

Deaths Due to Chronic Diseases as a Percentage of All Deaths,
Kentucky, 1999

Cause of Death	Total	Percent Deaths	Female Total Deaths	Percent of Total
Four Chronic Diseases	27,452	70.5	14,013	71.1
Total Cardiovascular Diseases	15,116	38.8	8,108	41.1
All Cancers	8,933	22.9	4,179	21.2
COPD	2,285	5.8	1,085	5.5
Diabetes	1,118	2.8	641	3.2
Other deaths	11,482	29.4	5,680	28.8
Total	38,934	100.0	19,693	100.0

SOURCE : Kentucky Department for Public Health, Surveillance and Health Data Branch, Death Certificate File, 1999.

modifiable including age, gender, and family history. Taking these factors into account, an individual can modify their behavior to reduce their potential risk for cardiovascular disease by as much as 80 percent by following a healthy lifestyle.¹⁵

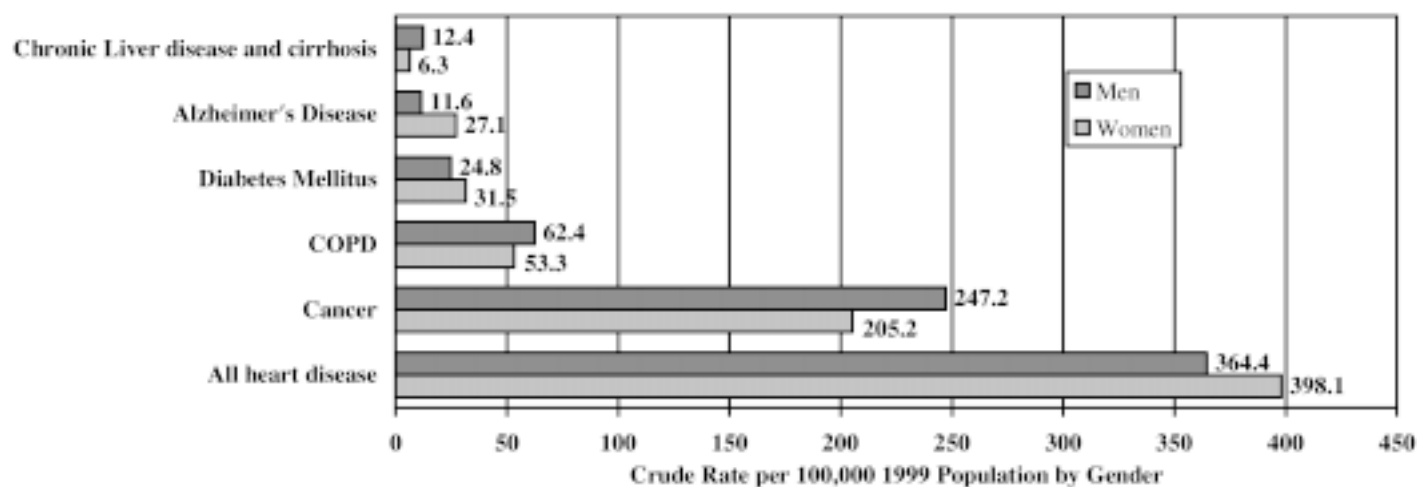
The burden of CVD in Kentucky is among the highest in the nation, ranking 5th in age adjusted mortality rates according to the American Heart Association's "2000 Heart and Stroke Statistical Update". The four states ranking higher than Kentucky are Louisiana, West Virginia, Tennessee and Mississippi.¹⁶

One of the most damaging myths about heart disease is that it is a "man's disease", thus contributing to the lack of awareness of the risk of heart disease among women. The fact, however, is that more women in Kentucky die each year from heart disease than men. In 1998, there were 6,102 female deaths compared to 5,768 male deaths.¹⁷ (Fig. 12)

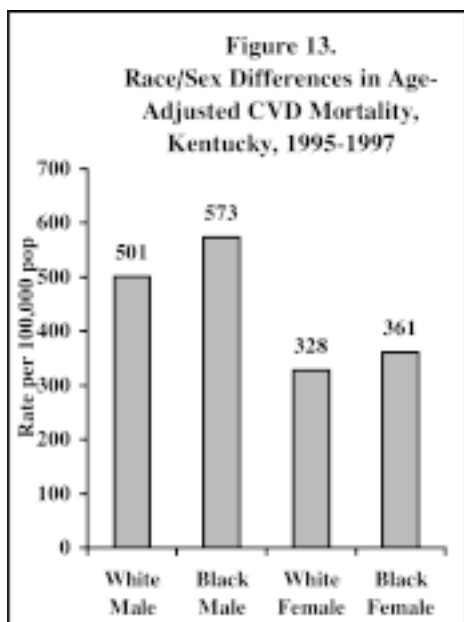
However, when adjusted for age, (taking into account the larger population of elderly women), rate of death due to heart disease is greater for men – 504 per 100,000 population versus 332 per 100,000 for women (rates averaged over

Figure 12.

Deaths Due to Selected Chronic Conditions in Kentucky, 1999



SOURCE : Kentucky Department for Public Health, Surveillance and Health Data Branch, Death Certificate File, 1999.



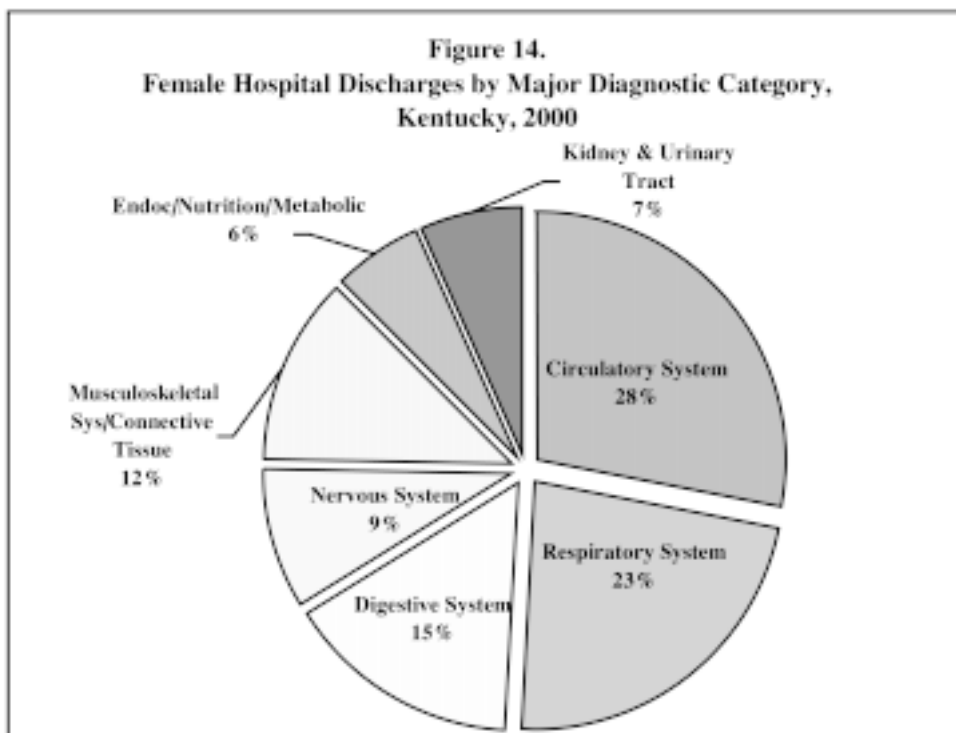
SOURCE: Reprinted from "Kentucky State of the Heart 2000", Kentucky Department for Public Health, Chronic Disease Prevention and Control Branch

three year period, 1995-1997).¹⁸ (Fig. 13)

Admissions to hospitals due to cardiovascular disease represent the largest proportion of non-pregnancy related hospitalizations for women in Kentucky. In 2000, nearly 50,000 women representing 28 percent of total discharges were hospitalized with a clinical diagnosis of

"diseases and disorders of the circulatory system" (classified as Major Diagnostic Category 05- includes heart disease, hypertension, and stroke). (Fig. 14)

Cardiovascular disease is statistically more threatening to women than other diseases. However, a survey conducted by the American Heart Association found that most women



SOURCE: Kentucky Department for Public Health, Health Policy Development Branch, 2000 Kentucky Hospital Discharge Data

Figure 15.	
WOMEN'S SYMPTOMS (The ABCs)	MEN'S SYMPTOMS
Angina (or chest pain) – women often describe this as a tightness in the chest, sometimes radiating down the left arm or into the jaw. This is often mistaken for indigestion.	Sudden pressure, fullness, squeezing or pain in the center of the chest that lasts more than a few minutes or goes away and then comes back.
Breathlessness (chronic) or waking up at night having difficulty catching one's breath.	Pain that radiates from the center of the chest to the shoulders, neck, or arms.
Chronic Fatigue – fatigue associated with heart disease is usually overwhelming and unusual.	Chest discomfort with lightheadedness, fainting, sweating, nausea, or shortness of breath.
Dizziness – unexplained lightheadedness, even blackouts.	Sudden onset of rapid heartbeats.
Edema – swelling, particularly of the ankles, and/or lower legs.	
Fluttering (or rapid) heartbeats.	
Gastric upset (or nausea)	

SOURCES: *Healing the Female Heart*, By Elizabeth Ross, MD, and Judith Sachs, 1996, Pocket Books, A Division of Simon and Schuster; and the American Heart Association

believed their biggest health threat was cancer. In reality, heart disease claims nearly twice as many Kentucky women's lives as cancer, (8,108 v. 4,179 respectively in 1999) and over 13 times as many lives as breast cancer (614 deaths in 1999).¹⁹

One in eight women will develop breast cancer over the course of their lives; one in 25 will die of it. But one in three women will die of coronary heart disease, or heart attack. Heart disease is, by far, the biggest killer of women 55 and older. A woman's risk of heart disease is lower than a man's risk earlier in her life—before menopause, unless she has diabetes. But by the time she reaches 60, a woman has as much chance of having a heart attack as a man.

Heart disease is often referred to as the “silent killer” as heart attacks often occur without warning. More than half of the women who die suddenly of coronary disease had no previous symptoms.²⁰ Over 28 million American women are living with the effects of cardiovascular disease, including heart disease, high blood pressure and stroke. Of these, more than one-half are under the age of 65.

While angina (chest pain) is a major indicator of heart disease in both women and men, other symptoms in women, such as shortness of breath and chronic fatigue, are very common but are often ignored. (Fig. 15)

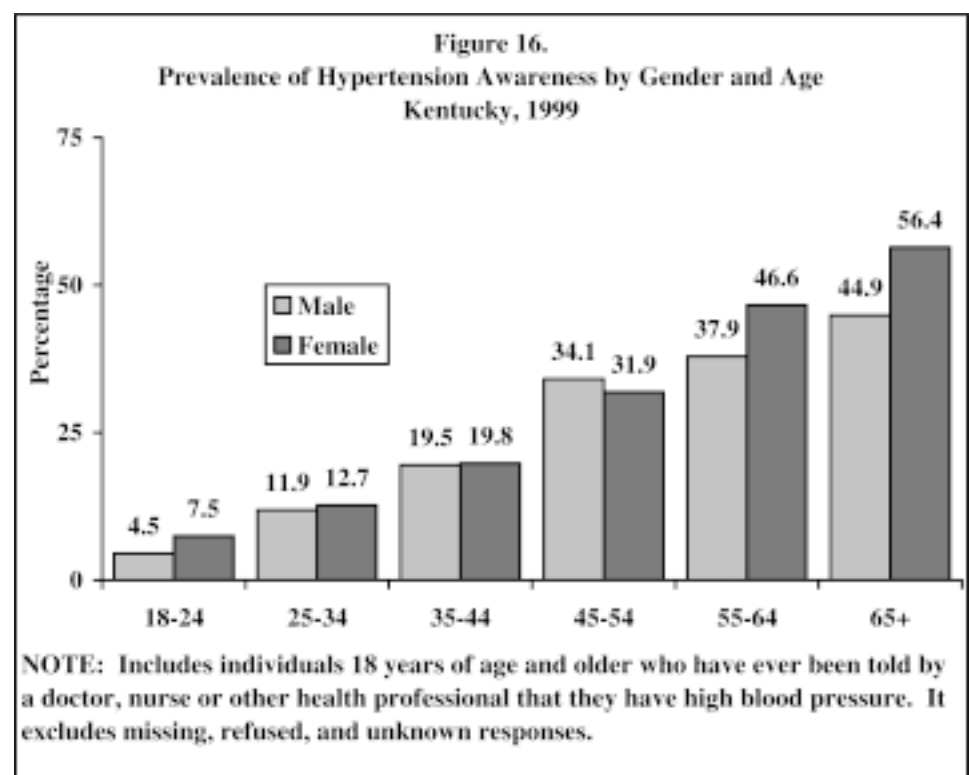
Hypertension

Hypertension, also known as high blood pressure, is the pressure

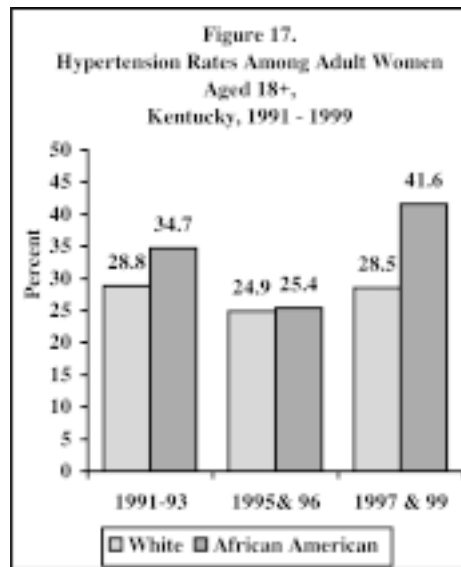
placed on the inside of the walls of arteries to keep blood flowing.²¹ Nationally, about 15 percent of the adult population have been told they have hypertension. According to the 1999 BRFSS data, 27.5 percent of the population in Kentucky had been told by a health professional that they have high blood pressure. More women than men report having high blood pressure, 30.1 percent of women versus 24.7 percent of men, with the prevalence rising as the population ages.²²

Among the elderly population with hypertension, nearly two-thirds (63 percent) are women. While men and women are almost equally likely to have hypertension before age 65, the gap widens later in life.²³ (Fig. 16)

Hypertension rates vary by race with blacks experiencing higher rates of hypertension



SOURCE: Kentucky BRFSS, 1999



SOURCE: Kentucky BRFSS, 1991-1999

than whites. Hypertension accounts for 20 percent of deaths among blacks in the U.S.—twice the figure for whites.²⁴ In Kentucky, 41.6 percent of black women have hypertension, compared to 28.5 of white women.²⁵ (Fig. 17)

Pregnant women can experience a fast-developing form of high blood pressure in the last three months before delivery, which can be hazardous to both mother and baby, if it isn't treated. Typically, the mother's blood pressure returns to normal after the baby is born. But sometimes pregnancy-induced

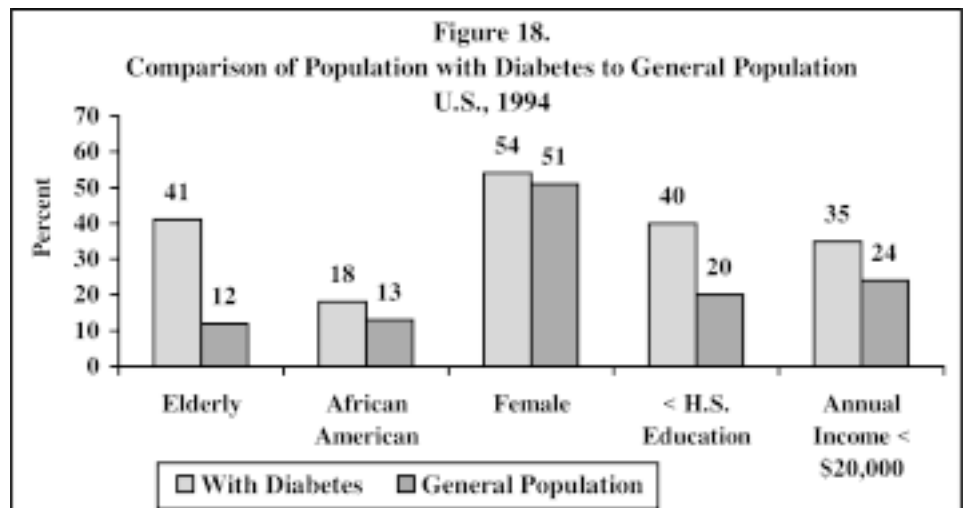
hypertension becomes chronic, requiring long-term treatment.²⁶

In some women, contraceptive pills have been known to raise blood pressure. This occurs most frequently among women who are overweight, who have had blood pressure problems in pregnancy, who have had kidney disease, or who have a family history of blood pressure problems. This pill-related hypertension is especially pronounced in women who smoke.²⁷

Diabetes

Diabetes is a chronic condition caused by the body's inability to create or effectively use its own insulin, a hormone necessary to convert food to glucose, which the body needs for energy.²⁸ Diabetes affects 6 percent of the U.S. population, 16 million people, yet more than 1 of every 10 U.S. health care dollars is spent on diabetes.²⁹

Women and the elderly account for more of the population with diabetes. Women comprise 54 percent of the population with diabetes and



SOURCE: National Academy on an Aging Society analysis of data from the 1994 National Health Interview Survey, as published in *Diabetes, A drain on U.S. Resources*, Challenges for the 21st Century: Chronic and Disabling Conditions, April 2000

Figure 19.
Diabetes Prevalence by Age,
Kentucky, 1995-2000

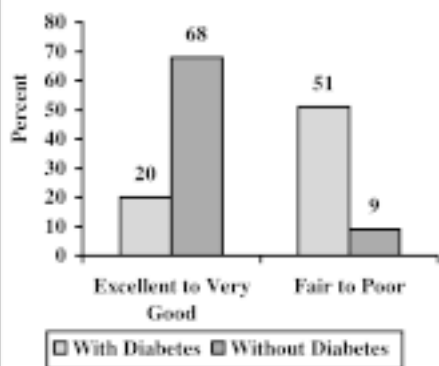
Age Group	1995	2000	%Change
18-24	0.2	1.8	11.1%
25-34	0.6	1.4	42.9%
35-44	0.7	1.7	41.2%
45-54	3.5	8.7	40.2%
55-64	8.0	12.7	63.0%
65+	10.2	14.1	72.3%

SOURCE: Kentucky BRFSS, 1995 - 2000

the elderly account for 41 percent of the population with diabetes.³⁰ (Fig. 18) From 1995-2000 in Kentucky, the elderly population over age 65 had the highest percent increase in diabetes prevalence, rising from 10.2 percent to 14.1 percent. (Fig. 19)

The most common form of diabetes is Type 2 diabetes. This form of diabetes generally develops after age 40 and affects up to 95 percent of adults who have the disease. The life expectancy of people with diabetes averages 15 years less than that of people without diabetes³¹ and people with diabetes report a poorer physical health status than the population without diabetes.³² (Fig. 20)

Figure 20.
Self-Reported Physical Health,
by Diabetes Status, U.S., 1994



SOURCE: National Academy on an Aging Society analysis of diabetes from the 1994 National Health Interview Survey

Diabetes rates are rising, increasing the burden of chronic disease on women in Kentucky. According to the 2000 Kentucky BRFSS, 6.1 percent of women responded that they had been told by a doctor at some point in their life, that they had diabetes, compared to 4.2 percent of women nationally. Diabetes is also disproportionately prevalent among blacks with 9.8 percent of black women over 18 years old reporting they have been told by a doctor that they have diabetes, versus 6.0 percent of white women. (Fig. 21)

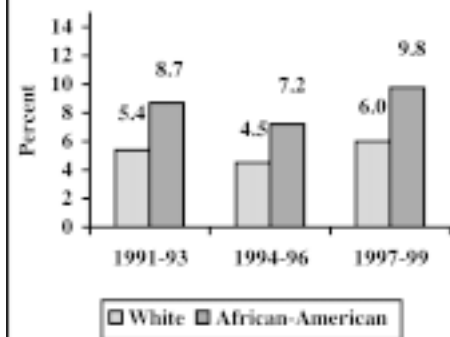
People with diabetes are two to four times more likely to have heart disease and suffer from stroke. As rates of obesity increase in Kentucky, so does the incidence of diabetes. Maintaining a healthy weight, eating a healthy diet and exercising regularly are lifestyle changes that can reduce your risk for diabetes.³³

Chronic Obstructive Pulmonary Disease (COPD)

COPD is the overall term for a group of chronic lung conditions including bronchitis, emphysema and other lung disorders. The main cause of COPD is smoking, and it is strongly associated with lung cancer, the number one cause of cancer death in women.

In Kentucky, 1,085 women died of COPD in 1999 (5.5 percent of all deaths), making it the fourth leading cause of death for Kentucky women. A woman who smokes is 10 times more likely to die of COPD than a woman who does not smoke. The quality of life for a person with COPD diminishes as the disease progresses.

Figure 21.
Women Aged 18+ who have been
told by a doctor they have diabetes,
Kentucky 1991 - 1999



SOURCE: Kentucky BRFSS, 1991 - 1999

Breathlessness and activity limitations develop, and eventually breathing may only be possible with mechanical respiratory assistance.³⁴

You can reduce your risk of COPD simply by not smoking.

Asthma

Asthma, a chronic inflammatory disorder of the airways, is a largely manageable condition. The CDC estimates that more than 15 million Americans suffer from asthma. The increase in asthma cases and deaths affects all ages, spans across all racial groups and occurs throughout the U.S.³⁵

Despite its manageability, asthma accounted for more than 1.8 million emergency room visits nationally in 1995. By race, ER visits nationally for asthma were 48.8 per 10,000 among whites and 228.9 per 10,000 among blacks.³⁶

In Kentucky, according to the 2000 Kentucky BRFSS, current asthma prevalence is 9.8 percent for women and 5.5 percent for men. National asthma rates reveal a dramatic increase over the past 20 years. Since 1980, female asthma rates have nearly doubled, from 29.2 per 1,000 population to 56.2 per 1,000 population. The number of doctor's office visits to treat asthma more than doubled between 1975 and 1995. These increases were evident in all races, both sexes, and all age groups.³⁷

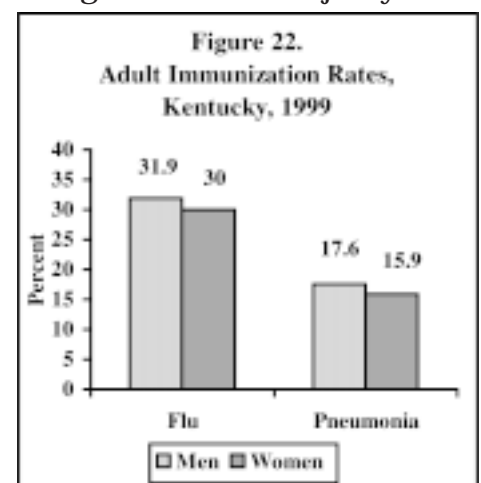
Pneumonia and Influenza

Pneumonia and influenza combined are the fifth leading cause of death in

U.S. women³⁸ and the 10th leading cause of death for women in Kentucky.³⁹ In 1999, influenza and pneumonia were responsible for 1.7 percent of all female deaths in Kentucky. When associated with other chronic conditions, pneumonia and influenza can be especially life threatening. Individuals with COPD, asthma, heart disease, diabetes, or other conditions that suppress the immune system are at high risk.⁴⁰

The risk of both pneumonia and influenza can be reduced by immunizations. A yearly flu shot can be up to 90 percent effective in preventing influenza in healthy adults and the pneumococcal vaccine can reduce the risk of pneumonia by 80 percent.⁴¹

People age 65 and older are at high risk and are more likely to get pneumonia. Many people who get pneumonia end up in the hospital while others take many months to recover. Older adults get sicker than younger people who get pneumonia. The CDC recommends a flu shot every year in the fall. For adults 65 and over, they also recommend a pneumonia vaccine. Adult immunization rates for Kentucky are outlined in Fig 22, with the majority of



SOURCE: Kentucky BRFSS, 1999

the shots being given to adults age 65 and over. (Fig. 22)

CHRONIC DEGENERATIVE CONDITIONS

Arthritis and Osteoporosis

Other, less life-threatening chronic conditions include arthritis and osteoporosis – conditions which disproportionately affect women. Arthritis and other rheumatic conditions affect nearly 43 million Americans, or about one of every six people, making it one of the most prevalent diseases in the United States.⁴² Arthritis comprises a variety of diseases and conditions, including osteoarthritis, rheumatoid arthritis, fibromyalgia, lupus, childhood arthritis, gout, bursitis, Lyme arthritis, and carpal tunnel syndrome.⁴³ (Fig. 23)

According to the CDC, arthritis is a leading cause of disability in the United States. Hip and knee osteoarthritis are the leading causes of arthritis disability and also the primary causes of expensive joint replacement surgery. As the population ages, this condition and expenses associated with it, will become more prevalent.⁴⁴ In Kentucky, joint replacement was one of the top ten medical diagnoses for women entering Kentucky hospitals, with 4,490 reported admissions in year 2000.⁴⁵ An average of 24 percent of hip fracture patients age 50 and over die in the year following their fracture.⁴⁶

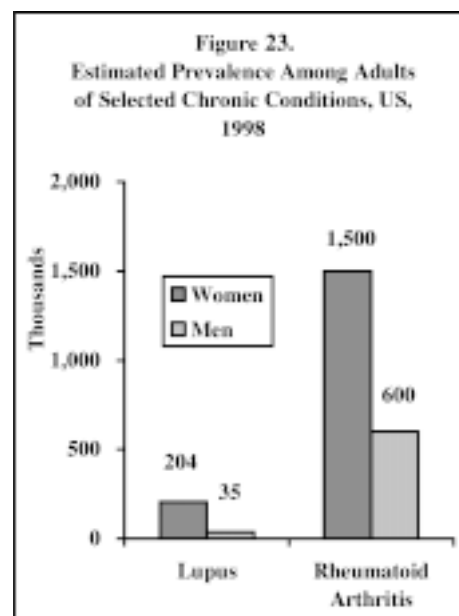
Osteoporosis, or brittle bones as it is often called, is a major contributing factor to hip

fractures. According to the National Osteoporosis Foundation, one in two American women over age 50 will suffer an osteoporosis-related fracture in their lifetime.

Osteoporosis is responsible for more than 1.5 million fractures annually, including:

- 300,000 hip fractures; and approximately
- 700,000 vertebral fractures,
- 250,000 wrist fractures; and
- 300,000 fractures at other sites⁴⁷

Osteoporosis is the loss of bone density or thinning of the bones.⁴⁸ Women are at particular risk for osteoporosis because, even at their peak, bone mass for women is naturally lower than for men. In fact, women suffer from osteoporosis at a rate four times as much as men.⁴⁹ Also, during menopause, when estrogen production slows down, women become more susceptible to osteoporosis. The hormone estrogen naturally protects women from bone loss. Women can protect themselves from osteoporosis by participating in moderate amounts of weight



SOURCE: National Institutes of Health, 1998

bearing exercise such as walking or jogging, eating a balanced diet high in calcium, and for post-menopausal women, hormone replacement therapy may provide some protective benefits.⁵⁰

Other Chronic Conditions

Another common chronic condition affecting primarily women is thyroid disease. Although the reason is not understood, women are at higher risk of most types of thyroid disease than men.⁵¹ Women develop thyroid disease earlier in life than men and about 10 percent of women will have thyroid dysfunction following pregnancy. An estimated 25 percent of those with an autoimmune disorder will develop thyroid malfunction.⁵²

NOTES

- ¹ Internet: Centers for Disease Control and Prevention. <http://www.cdc.gov/nccddphp/about.htm>.
- ² Johns Hopkins University and Robert Woods Johnson Foundation, 2001 Partnership for Solutions, Internet: <http://www.chronicnet.org/problem/index.htm>.
- ³ *Chronic Care in America: A 21st Century Perspective*, p. 13, August 1996.
- ⁴ Johns Hopkins University and Robert Woods Johnson Foundation, 2001 Partnership for Solutions, Internet: <http://www.chronicnet.org/problem/index.htm>.
- ⁵ *Chronic Conditions, A Challenge for the 21st Century*, National Academy on an Aging Society, Number 1: November 1999.
- ⁶ *Challenges for the 21st Century, Chronic and Disabling Conditions*, Number 4: February 2000, National Academy on an Aging Society.
- ⁷ Centers for Disease Control and Prevention, BRFSS 1999. Internet: <http://apps.nccdc.cdc.gov/brfss/>.
- ⁸ *Challenges for the 21st Century, Chronic and Disabling Conditions*, Number 4: February 2000, National Academy on an Aging Society.
- ⁹ Smoking Risks, Q & A. MSN Health. <http://content.health.msn.com/content/article/1683.50090>.
- ¹⁰ CDC, Kentucky BRFSS Prevalence data, 2000. <http://www.cdc.gov/nccddphp/brfss/index.htm>.
- ¹¹ *Utilization of Ambulatory Medical Care by Women: United States, 1997 – 98*. National Center for Health Statistics, Vital and Health Statistics, Series 13, Number 149, July 2001.
- ¹² *Utilization of Ambulatory Medical Care by Women: United States, 1997 – 98*. National Center for Health Statistics, Vital and Health Statistics, Series 13, Number 149, July 2001.
- ¹³ *Utilization of Ambulatory Medical Care by Women: United States, 1997 – 98*. National Center for Health Statistics, Vital and Health Statistics, Series 13, Number 149, July 2001.
- ¹⁴ *National Hospital Ambulatory Medical Care Survey: 1999 Outpatient Department Summary*. Advance Data From Vital and Health Statistics. National Center for Health Statistics, Number 321, June 26, 2001.
- ¹⁵ *Heart Disease, A disabling yet preventable condition*. Challenges for the 21st Century: Chronic and Disabling Conditions, Number 3: January 2000.
- ¹⁶ Wood, PhD, Teresa, Miller, MS, Tracy, Lawther MS, Greg, *Kentucky State of the Heart 2000*. Chronic Disease Prevention & Control Branch, Kentucky Department for Public Health, March 2000.
- ¹⁷ *Kentucky Vital Statistics Report*, 1998, Surveillance and Health Data Branch, Dept for Public Health.
- ¹⁸ Wood, PhD, Teresa, Miller, MS, Tracy, Lawther MS, Greg, *Kentucky State of the Heart 2000*. Chronic Disease Prevention & Control Branch, Kentucky Department for Public Health, March 2000.
- ¹⁹ Vital Statistics Data, Internet: <http://publichealth.state.ky.us/Reports-Data/percent20Files/Health/percent20Data/1999-KY/percent20Death/percent20Statistics/Table/percent202-T.pdf>.
- ²⁰ New York Times, *A Devastating Lack of Awareness*, Internet: <http://www.nytimes.com/2001/06/24/health/24GRAD-WH.html>.
- ²¹ Hypertension, A common condition for older Americans. Challenges for the 21st Century: Chronic and Disabling Conditions. Number 12: October 2000.
- ²² Centers for Disease Control and Prevention, 1999 BRFSS data, Internet: <http://apps.nccdc.cdc.gov/brfss/sex.asp?cat=HA&yr=1999&qkey=1365&state=KY>.
- ²³ Hypertension, A common condition for older Americans. Challenges for the 21st Century: Chronic and Disabling Conditions. Number 12: October 2000.
- ²⁴ Scientific American. *The Puzzle of Hypertension in African-Americans*. Internet: <http://www.sciam.com/1999/0299issue/0299cooper.html>.
- ²⁵ Kentucky Department for Public Health, BRFSS, 1997 and 1999.
- ²⁶ Cardiovascular Institute of the South, Internet: <http://www.cardio.com/articles/women.htm>.
- ²⁷ Cardiovascular Institute of the South, Internet: <http://www.cardio.com/articles/women.htm>.
- ²⁸ *Diabetes, A drain on U.S. resources*, Challenges for the 21st Century: Chronic and Disabling Conditions, Number 6, April 2000. National Academy on an Aging Society.
- ²⁹ Diabetes Research Working Group. (1999). *Conquering Diabetes: A Strategic Plan for the 21st Century*. NIH: Bethesda, MD. As published in: *Diabetes, A drain on U.S. resources*, Challenges for the 21st Century: Chronic and Disabling Conditions, Number 6, April 2000. National Academy on an Aging Society.
- ³⁰ *Diabetes, A drain on U.S. resources*, Challenges for the 21st Century: Chronic and Disabling Conditions, Number 6, April 2000. National Academy on an Aging Society.
- ³¹ Juvenile Diabetes Foundation. (1998). *Diabetes Facts*, <http://www.jdfcure.org>.
- ³² *Diabetes, A drain on U.S. resources*, Challenges for the 21st Century: Chronic and Disabling Conditions, Number 6, April 2000. National Academy on an Aging Society.
- ³³ Internet: www.mayoclinic.com/home.
- ³⁴ Internet; Mayo Clinic Health. <http://www.mayohealth.org/home?id=WO00014>.
- ³⁵ CDC, Internet: <http://www.cdc.gov/od/oc/media/pressrel/r980424.htm>.
- ³⁶ CDC, Internet: <http://www.cdc.gov/od/oc/media/pressrel/r980424.htm>.
- ³⁷ CDC, Internet: <http://www.cdc.gov/od/oc/media/pressrel/r980424.htm>.
- ³⁸ National Vital Statistics Report, *Deaths: Final Data for 1997*. National Center for Health Statistics, Centers for Disease Control and Prevention. June 30, 1999. http://www.cdc.gov/nchs/data/nvsr/nvsr47/nvsr47_19.pdf#table%20percent208.
- ³⁹ Kentucky Death Certificate File, 1999. Surveillance and Health Data Branch, Dept. for Public Health.
- ⁴⁰ Internet: www.mayoclinic.com/home.
- ⁴¹ Internet: www.mayoclinic.com/home.
- ⁴² CDC: <http://www.cdc.gov/hccddphp/art-aag.htm>.
- ⁴³ CDC: <http://www.cdc.gov/hccddphp/art-aag.htm>.
- ⁴⁴ CDC: <http://www.cdc.gov/hccddphp/art-aag.htm>.
- ⁴⁵ 2000 Kentucky Hospital Discharge Data, Department for Public Health, Health Policy Development Branch.
- ⁴⁶ National Osteoporosis Foundation, Internet: <http://www.nof.org/osteoporosis/stats.htm>.
- ⁴⁷ National Osteoporosis Foundation, Internet: <http://www.nof.org/osteoporosis/stats.htm>.
- ⁴⁸ Internet: <http://health.discovery.com/diseasesandcond/encyclopedia/1666.html>.
- ⁴⁹ National Osteoporosis Foundation, Internet: <http://www.nof.org/osteoporosis/stats.htm>.
- ⁵⁰ Internet: <http://health.discovery.com/diseasesandcond/encyclopedia/1666.html>.
- ⁵¹ New York Thyroid Center: Thyroid Disease in Women, Internet: <http://cpmcnet.columbia.edu/dept/thyroid/women.html>.
- ⁵² New York Thyroid Center: Thyroid Disease in Women, Internet: <http://cpmcnet.columbia.edu/dept/thyroid/women.html>.